APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,212	04/02/2004	Steven R. Kleiman	112056-0126D1	2407

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EXAMINER
NGUYEN, THAN VINH

ART UNIT	PAPER NUMBER
2187	

MAIL DATE	DELIVERY MODE
10/29/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 October 2010</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-16,39,40 and 45-51</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>1-16,39,40,45,46 and 51</u> is/are allowed.

6)☒ Claim(s) <u>47-50</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>10/7/10</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 10/7/10 has been entered.

2.   Claims 1-16,39,40,45-51 are pending.

3.   The IDS, filed 10/7/10, has been considered.

Response to Amendment/Arguments

4.   All previous rejection(s)/objection(s) not listed below are withdrawn.

5.   The claims amendment fixes most of the previous 112 problems. However, the

amendment also introduces new 112 problems. The Examiner has listed the problems below and

also proposed claim languages to correct and clarify the claim language. Applicant should adopt

the proposed language as the proposed language does not further restrict the scope of the claims

while further clarify the claimed invention. The proposed claim language (especially claims 47-

49) should be accepted entirely or antecedent problems will persist.

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

7.   Claim **47** recites the limitation "which method requires a fewer number of read

operations" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Applicant has not established precedence for determining which method requires a fewer number

of read operations. In fact, there is no earlier mention of "method" at all. Thus, the term "which

method requires a fewer number of reads" is inappropriate. The Examiner suggest Applicant

uses an alternative language to better describe the invention:

"determining, in response to the block layout information, whether a method to

minimize a number of read blocks or a method to maximize chain lengths of read blocks

requires a fewer number of read operations, and".

8.   Claim **47** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. The language "**implementing a selection**, **during** the writing of the data to the

plurality of storage devices, **responsive to** the block layout information, and **responsive to**

whether minimizing the number of read blocks or substantially maximizing chain lengths of read

blocks requires the fewer number of read operations" is vague and indefinite. It is unclear as

what is selected. From the current claim language, a selection is made with the conditions

"during..." and "responsive to...". However, it is not clear as **from what** a selection is made.

The Examiner suggests using the following language:

"wherein, during the writing of the data to the plurality of storage devices,

responsive to the block layout information, and responsive to the determining step,

selecting the method that requires the fewer number of read operations."

9.   Claim **48** recites the limitation "in response to **selecting to minimize the number of**

read blocks" in line 2. There is insufficient antecedent basis for this limitation in the claim.

There is no earlier step to select to minimize the number of read blocks, only the selection of a

method that resulted in a fewer number of read operations. The Examiner suggest using the

following language:

"**48.   The method of claim 47, further comprising:**

in response to selecting the method that requires the fewer number of read

operations, determining whether a subtraction method or a recalculation method requires

a fewer number of read operations to calculate parity, and

performing the write operation and calculating the parity using the determined

parity calculation method that requires the fewer number of read operations."

10.   Claim **49** recites the limitation "in response to selecting to maximize chain length" in line

2. There is insufficient antecedent basis for this limitation in the claim. There is no antecedent

basis for selecting to maximize chain length, only the determination of whether maximize chain

length results in a fewer read operations.   The Examiner suggests the following claim language:

"**49. The method of claim 47, further comprising:**

in response the selection of the method to maximize chain lengths of read blocks,

deciding which storage blocks to read to maximize chain lengths while minimizing the

number of storage blocks read to support either the subtraction method or the

recalculation method; and

performing the write operation and calculating the parity using the determined

parity calculation method that requires the fewer number of read operations."

11.   Claim **50** recites the limitation "which method requires a fewer number of read

operations" in line 23. There is insufficient antecedent basis for this limitation in the claim.

Applicant has not established precedence for determining which method requires a fewer number

of read operations. Thus, the term "which method requires a fewer number of reads" is

inappropriate. Furthermore, the language "using which method" (line 26) is vague since the term

"which" does not further clarify the methods referred. The Examiner suggest Applicant uses an

alternative language to better describe the invention:

"**50.**   A method for managing storage of data by a server, comprising:

receiving a request to write data to a plurality of storage devices;

generating block layout information to determine which blocks within a plurality of

blocks located in the plurality of storage devices are allocated and which are unallocated;

identifying blocks within the plurality of blocks for use by a set of I/O operations to store

the data;

testing to either maximize chain lengths of read operations for calculation of parity,

or to place the data with a high degree of locality in the plurality of storage devices, the

testing comprising:

determining, for both maximizing chain length and placing the data with the high

degree of locality, a number of read operations needed to calculate parity for the data, by

calculating parity using both a subtraction method of calculating parity and a

recalculation method of calculating parity;

first choosing to either maximize chain lengths of read operations for calculation of

parity or to place the data with the high degree of locality in the plurality of storage

devices, and after the first choice, secondly choosing either the subtraction method of

calculating parity or the recalculation method of calculating parity by determining which

of these methods requires a fewest number of read operations,

choosing, from the subtraction method and recalculation method, the method which

requires the fewest number of read operations for calculating parity of the data; and

writing the data to the identified blocks, and calculating parity for the data using

the chosen method."

Allowable Subject Matter

12.   Claims 1-16,39-40,45,46,51 are allowed for reasons indicated previously.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Than Nguyen whose telephone number is 571-272-4198. The

examiner can normally be reached on 7am-3pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kevin Ellis can be reached on (571) 272-4205. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Than Nguyen/   Than Nguyen

Primary Examiner, Art Unit 2187

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Art Unit 2187